Per unit of weight of SiO2 in it, there are 1-7 units by weight of PeO, from which it appears an a mixture of ioHiO, (with 1-2 units by weight FeO) with Fe.SiO, (with 2-4 units by weight of FeO), whilst its content of .FeA renders it apparent that it also contains dissolved froo scale. This sla* at the ruling temperature is to bo regarded as approximately in equilibrium with the acid furnace structure. In open-hearth furnaces with acid structure considerably higher temperatures rule, whereby the conditions of the equilibrium become different. In addition to the before-considered predominating constituents, FeO and Hi()a, there comes in addition a third, the MuO; novortholoss, FeO and MnO are in their chemical character very similar to one another and exhibit very little difference in their molecular weight, so that one can judge the chemical character of the slag very well from its silica content. FeSi()a contains, as stated, 45'4 per cent. SiOa, and the final slag of acid open-hearth working shows, with its silica content of approximately 45 per cent., that in this furnace the endeavour rulos for the attainment of the siliciousness of the bi-silicatos, and that, nevertheless, the strongly-increased temperature which makes its appearance at the end of the process in in a position to render the bi-silicate capable of taking up further quantities of silica, in that the SiOa content can rise up to 59 per cent. (Ledebur, " Eisonhultenkundo," Vol. 1IL, p. 869).

In the basic open-hearth furnace, the conditions for the composition of the slag are more complicated, because now in addition, lime and magnesia appear as substantial constituents of the slag. Iron protoxide forms with lime not HO sharply precise compounds as with silicic acid. For all that, however, the two substances combine into fusible compounds, the formation "of which are considerably favoured by thci inter-reaction of small amounts of silicic acid. Hehmidthammer gives (vide Stahl und Eisen 1902, pp. 651 et *eq.) examples of the formation of the slags from iron oxides and lime on basic hearths, which were obtained by the (Jorainoff process in the Bogoslovsk forge in the Ural. In this process, iron ore and limestone are brought into the furnace and fused together,